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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,146	04/08/2004	Naoki Nishiyama	50395-266	6683

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EXAMINER	
MONBLEAU, DAVIENNE N	
ART UNIT	**PAPER NUMBER**
2878	

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H'A

Office Action Summary	Application No.	Applicant(s)	
	10/820,146	NISHIYAMA, NAOKI	
	Examiner	Art Unit	
	Davienne Monbleau	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/5/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The IDS filed on 8/5/04 has been acknowledged and a signed copy of the PTO-1449 is attached herein.

Specification

Examiner believes that the reference numbers for the pre-amplifier and high voltage source have been reversed throughout the specification and thus do not correspond to the drawings.

Claim Objections

Claim 1 line 1: "an light-receiving" should be changed to -- a light-receiving -- .

Claim 8 line 1: "an light-receiving" should be changed to -- a light-receiving -- .

Claims 1 and 8 recite "a reference resistor for detecting ...". Is the resistor really "detecting" or rather receiving the signal current?

Claim 8 recites "a photodiode ... for receiving said optical signal". The photodiode, however, receives the optical signal from an outside light source, not the current mirror.

Claim 8 recites "generates a signal current ... bias voltage". This is unclear because the photodiode does not "provide" a controlled bias voltage.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5, 7, and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Hofmeister et al. (U.S. 2003/0178552).

Regarding Claim 1, *Hofmeister* discloses in Figure 3A a light-receiving circuit for receiving an optical signal with a predetermined transmission speed comprising a light-receiving device (102), a bias supply (106, 212) for providing a bias voltage to said light-receiving device (102), a reference resistor (348) for detecting a signal current generated by said light-receiving device (102), and a feedback control circuit (210) for receiving said signal current detected by said reference resistor (348) and feedback controlling said bias supply (106, 212) such that said signal current is maintained to be a predetermined magnitude.

Regarding Claim 2, *Hofmeister* discloses in Figure 3A that said bias supply (106, 212) includes a high voltage source (106) and a voltage control circuit (212) serially connected to said high voltage source (106), said feedback control circuit (210) feedback controlling said voltage control circuit (212).

Regarding Claim 3, *Hofmeister* discloses in Figure 3A a current mirror circuit (208) having one input port connected to an output of said bias supply (106, 212) and two output ports, one of two output ports being connected to said light-receiving device (102) and the other of two output ports being connected to said reference resistor (348).

Regarding Claim 5, *Hofmeister* discloses in Figure 3A that the light-receiving device is an avalanche photodiode having an anode electrode and a cathode electrode connected to said bias supply (106, 212).

Regarding Claim 7, *Hofmeister* discloses in Figure 3A a pre-amplifier connected to said light-receiving device (102).

Regarding Claim 8, *Hofmeister* discloses in Figure 3A an light-receiving circuit for receiving an optical signal having a predetermined transmission speed comprising a high voltage source (106), a voltage control circuit (212) connected to said high voltage source (106) and outputting a controlled bias voltage, a current mirror circuit (208) connected to said voltage control circuit (212), said current mirror circuit (208) receiving and outputting said controlled bias voltage, a photodiode (102) connected to said current mirror circuit (208) for receiving said optical signal and generates a signal current corresponding said optical signal by providing said controlled bias voltage, a reference resistor (348) for detecting said signal current, and a feedback control circuit (210) connected between said reference resistor (348) and said voltage control circuit (212), said feedback control circuit (210) feedback controlling said voltage control circuit (212) such that said signal current detected through said reference resistor (348) is maintained to be a predetermined magnitude, and wherein said photodiode (102) is an avalanche photodiode.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmeister.

Regarding Claim 4, *Hofmeister* teaches in Figure 3A a feedback control circuit (210) but does not teach its time constant. It would have been obvious, however, to one of ordinary skill in the art at the time of the invention to use a time constant greater than said predetermined transmission speed to provide a stable output signal and prevent excessive signal swing.

Regarding 6, *Hofmeister* teaches that the light-receiving device is an avalanche photodiode but does not teach that it is a PIN photodiode. *Hofmeister* does teach in paragraph [0003] that the photodiodes are typically avalanche photodiodes or PIN photodiodes and further teaches in paragraph [0023] that under circumstances the avalanche photodiode may behave like a PIN photodiode. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a PIN photodiode in *Hofmeister* when only high input optical power is used. (See paragraph [0023].)

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure because they teach various photodiode (some avalanche photodiode) voltage control circuitry with resistors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davienne Monbleau whose telephone number is 571-272-1945. The examiner can normally be reached on Mon-Fri 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Darienne Montbleau

DNM

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